CITIES for CLIMATE PROTECTION

Local Action Plan

to Reduce Greenhouse Gas Emissions for County Government Operations

Tompkins County, New York

June, 2003

Adopted by the Tompkins County Legislature July 15, 2003

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In cooperation with:
International Council for Local Environmental Initiatives
Tompkins County Planning Department
Tompkins County Environmental Management Council

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Acknowledgments

The author would like to express his sincere appreciation to all those who made the Local Action Plan possible. Foremost, the author would like to thank the International Council for Local Environmental Initiatives (ICLEI) and the Cities for Climate Protection (CCP) Campaign for providing direction and support. Much gratitude is extended to the Tompkins County Legislature for taking the initiative on this project, the Environmental Management Council's Energy Committee for providing input, and the County Planning Department for providing daily support and guidance. Lastly, the author would like to thank the numerous County department heads and staff members for supplying data and input pertinent to the completion of this plan.

Executive Summary

Climate patterns are expected to shift dramatically in the next 100 years as a result of human-caused greenhouse gas emissions. The impacts of global climate change present a real threat to our economic, environmental and social systems. Temperatures in New York State are projected to increase between 4°F and 9°F by 2100. Increased temperatures and changes in rain events will impact local farm production and growth patterns as well as the local tourism industries that depend on winter snow or fall foliage to attract visitors. As these local and regional effects occur, communities are beginning to take steps to address climate change at the local level.

Cities for Climate Protection Campaign

In April 2001, Tompkins County joined the Cities for Climate Protection (CCP) Campaign, a project of the International Council on Local Environmental Initiatives. This action recognizes the need to address the global warming problem swiftly and effectively, and the County's unique position to play a role. The CCP Campaign is a voluntary program for municipal governments to identify sources of greenhouse gas emissions within their jurisdictions and to implement actions to combat global warming at the local level. The Campaign follows a set of milestones designed to assist governments in reducing their contribution to global warming:

- ✓ Milestone 1 — Conduct a greenhouse gas emissions analysis and inventory
- ✓ Milestone 2 — Set a reduction target
- ✓ Milestone 3 — Develop a Local Action Plan
- ⇒ Milestone 4 — Implement the Local Action Plan
- ⇒ Milestone 5 — Monitor progress and report results

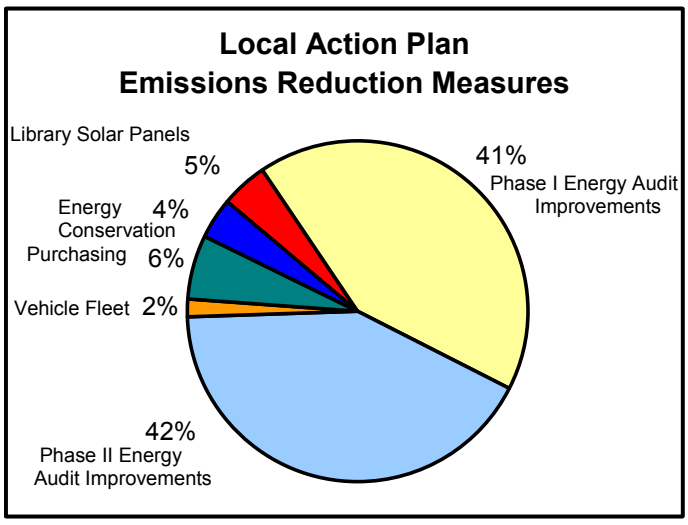
Emissions Inventory Results

Milestone 1, *The Tompkins County Greenhouse Gas Emissions Inventory*, was completed in September 2001 for community wide and county government emissions as of 1998. In 1998, the Tompkins County community produced a total of 1,223,432 tons eCO_2. Emissions from transportation (through the combustion of gasoline and diesel fuel) produced the majority of community emissions at 53%. County government operations accounted for 0.5% of the total emissions, or 6,849 tons eCO_2. Eighty-nine percent of county government emissions came from building energy use. The County vehicle fleet accounts for another 11% of emissions, or 752 tons eCO_2.

Milestone 2, setting an emissions reduction target, was achieved in 2002. The County Legislature adopted a resolution pledging to *" by 2008, reduce its emissions of greenhouse gases generated by county operations by 20 percent compared to the base year of 1998*."

Local Action Plan

Milestone 3, developing a local action plan, is the primary subject of this report. The Local Action Plan provides a road map to meet the greenhouse gas emissions reduction target. The plan recommends a mix of measures county government has already implemented since the baseline emissions inventory was completed, and new and proposed actions that together with the existing programs will reach the greenhouse gas reduction target.



Achieving the 20% reduction target for county operations by 2008 will require a reduction of 1,435 tons eCO_2. The Emission Inventory reported that 89% of the county's emissions are the result of building energy use. Taking this into account, 83% of the recommendations are focused on building efficiency improvements. The existing building efficiency measures identified in the plan are the library solar panel installation and implementation of the recommendations from the 2003 building energy audit survey. These measures will reduce emissions by 1,269 tons eCO_2 when fully implemented. The proposed new measures target three operations efficiency improvement areas to further reduce emissions: the vehicle fleet, office equipment purchasing, and general energy conservation measures. The proposed operations efficiency measures make up 12% of the total reduction recommendations and will result in a reduction of 166 tons eCO_2.

The Local Action Plan provides a framework for the County to reduce greenhouse gas emissions. Full implementation of the measures in the plan will require coordination and oversight between county departments and other agencies. The Local Action Plan supports three primary strategies to reach the climate protection goals outlined in the plan:

Strategy 1	Support full implementation of the *Local Action Plan to Reduce Greenhouse Gas Emissions* at the county government level.
Strategy 2	Monitor and report emissions reductions.
Strategy 3	Build a coalition of stakeholders that can spearhead emissions reduction measures in the municipal, business and residential sectors of Tompkins County.

The decisions of local governments can and do result in global impacts. Tompkins County government operations are responsible for roughly 0.5 percent of the total greenhouse gas emissions in the county. Tompkins County is helping to demonstrate and lead the community's climate protection activities by adopting, implementing, and monitoring the Local Action Plan for county operations. The county is in a unique position to use its own actions as an example to encourage community wide participation in reducing greenhouse gas emissions.

Introduction

Global Climate Change

Global climate change presents a real threat to our economic, environmental and social systems. Since the beginning of the Industrial Revolution, human activities – primarily the burning of fossil fuels – have caused a rapid increase in the concentration of several important greenhouse gases in the Earth's atmosphere by almost 30%. Greenhouse gases include carbon dioxide, methane, nitrous oxide, and other gases that enhance the heat-trapping capability of the earth's atmosphere.

The vast majority of climate scientists now agree that human-caused emissions of greenhouse gases are expected to significantly change global climate patterns. Scientists predict that the average global surface temperature will increase between 2.2°F and 10°F over the next 100 years as atmospheric concentrations of heat-trapping greenhouse gases continue to increase. Other anticipated impacts of climate change are likely to involve rising sea levels, increased frequency and severity of extreme weather events, changes in water quality and quantity, compromised food security, spread of disease vectors, and disruptions to natural ecosystems.

Climate Change in New York State and Tompkins County

Although climate change is a global issue and is often presented in the media as a problem addressed solely by international treaties, the effects of rapidly rising temperatures will be felt in every local community. Temperatures in New York State are projected to increase between 4°F and 9°F by 2100, with the largest increases in the coastal regions. This warming suggests possible increases in rain events over frozen ground or rapid snow melting events that can increase flooding. Moreover, climate change has great potential to add to existing stresses. The consequences of climate change particular to Tompkins County and surrounding areas include increased heat-related illness and death due to temperature extremes, and the impact of changing rates of precipitation and evaporation. The latter could be especially problematic on relatively inflexible water supply systems.

New York State and Tompkins County can expect changes in the local economy and cultural traditions as recreational patterns shift due to increased temperatures. Changing climate conditions will impact agriculture and livestock production patterns, as well as the local tourism economy. The ability of ski areas to maintain snow pack will become limited, the fall foliage colors muted, and occurrence of the sugar maple will likely migrate northward into Canada as the climate warms, sharply reducing maple syrup production, a longtime practice in this area. Elevated populations of disease-carrying insects such as mosquitoes and ticks carrying a growing range of infectious diseases usually found in tropical areas, such as encephalitis and malaria, will put stresses on human health. Ground-level ozone levels are expected to rise, thus reducing air quality in the area and leading to greater respiratory problems such as asthma, especially for the young, ill, and elderly in the local population. High levels of low-lying ozone will also damage crops and vegetation.

Tompkins County Role in Climate Change

As local and regional effects approach reality, it is clear that climate change, though a global problem, is one that must be addressed by local governments. Tompkins County Government took a significant step towards reducing greenhouse gas emissions at the local level on April 4, 2001. The County Legislature passed resolution number sixty-nine, on recommendation of the Environmental Management Council, joining the network of 350 cities and counties actively involved in the Cities for Climate Protection Campaign, a division of the International Council for Local Environmental Initiatives (ICLEI).

Since 1993, ICLEI has been assisting cities and counties around the United States and the world to reduce emissions of the gases and air pollutants that cause global warming with their Cities for Climate Protection Campaign (CCP). In 2003, five hundred and thirty city, town, and county governments are members of ICLEI worldwide and 138 municipalities are participating in the CCP Campaign in the United States. It is estimated that the CCP communities combined represent 18% of greenhouse gas emissions released from the United States. There are 11 participants, in addition to Tompkins County, that have joined the CCP Campaign in New York State.

Benefits to Tompkins County

Acting to reduce greenhouse gas emissions and protect the climate has numerous benefits to Tompkins County government and the community:

- ⇒ Saves taxpayer money. Actions that reduce greenhouse gas emissions cut electricity and fuel use, reducing energy costs for citizens, businesses, and institutions, creating savings for municipalities.
- ⇒ Improves air quality and public health. In the short term, less fossil fuel use in all sectors means less air pollution and fewer air-quality-related public-health impacts, such as asthma and other respiratory ailments. In the long term, acting to reduce greenhouse gases reduces the likelihood of climate-related public-health problems, such as the spread of heat-dependent diseases.
- ⇒ Improves livability of the community. Cutting greenhouse gas emissions with measures that make Tompkins County less auto dependent can reduce traffic congestion, clean the air, and contribute to more efficient homes, offices, and land-use patterns. In combination, these types of measures can help build a more livable community.
- ⇒ Boosts local economy. Decreased energy costs, coupled with expansion into new services and technologies (e.g., energy efficiency and renewable energy) can give local firms a competitive edge. The demand for energy-efficient products and services and for new or alternative energy technologies expands local business, can create local jobs, and boost the local economy.

Program Goals and Objectives

Cities for Climate Protection Campaign

The CCP Campaign is a voluntary program for municipal governments to identify sources of greenhouse gas emissions within their jurisdictions and to implement actions to combat global warming at the local level. The CCP Campaign methodology follows a set of milestones designed to assist Tompkins County in reducing its contribution to global warming:

- ✓ Milestone 1 — Conduct a greenhouse gas emissions analysis and inventory. *The Tompkins County Greenhouse Gas Emissions Inventory* was completed in September 2001 for community wide and county government emissions as of 1998. It is summarized later in this document.
- ✓ Milestone 2 — Set a reduction target. The reduction target is the specific greenhouse gas emissions reduction goal that Tompkins County aims to achieve by a designated year. The target was adopted in August 2002 (see below).
- ✓ Milestone 3 — Develop a Local Action Plan. The Local Action Plan is a description of the policies, programs, and measures Tompkins County will take to meet its reduction target. The Local Action Plan is the primary subject of this document.
- ⇒ Milestone 4 — Implement the Local Action Plan. Implementing the actions is an on-going process that will probably last until the emissions reduction target date is reached.
- ⇒ Milestone 5 — Monitor progress and report results. With ICLEI's help, the impact and status of the Local Action Plan policies will be measured and evaluated.

County Emissions Reduction Target

On August 7, 2002 The Tompkins County Legislature passed Resolution No. 191, again on the recommendation of the Environmental Management Council, establishing an emissions reduction target:

> *Tompkins County will, by 2008, reduce its emissions of greenhouse gases generated by county operations by 20 percent compared to the base year of 1998.*

This target year was chosen because it is ten years beyond the baseline year (1998) of the analysis presented in the *Tompkins County Greenhouse Gas Emissions Inventory*. The ten-year, 20 percent goal adopted by the County was recommended by ICLEI for the following reasons:

- ⇒ The Intergovernmental Panel on Climate Change has made it clear that emissions need to be cut by at least 20 percent to achieve stabilization of greenhouse gas emissions.
- ⇒ Communities around the world have successfully adopted the 20 percent goal.
- ⇒ A 20 percent reduction goal is both an achievable and significant target for county government operations.

Implementing measures to reduce greenhouse gas emissions in county government operations is something the County has direct influence over. For this reason, the target was set for government operations only. Tompkins County government operations influence important decisions affecting global warming such as building energy use, transportation, and waste disposal; the major sources of greenhouse gas emissions. Efforts to reduce greenhouse gas emissions will not only help to slow global warming, they can save taxpayer dollars, improve local air quality, and increase the quality of life in the community.

Developing a Local Action Plan

The August 2002 resolution also resolved to develop a local action plan to meet the 20 percent emissions reduction target. The primary focus of this document is the Local Action Plan, or Milestone 3 of the CCP Campaign. It will provide a road map to meet the greenhouse gas emissions reduction target. The plan will focus on measures county government has already implemented since the baseline emissions inventory was completed, identify new and proposed actions that together with the existing programs will reach the greenhouse gas reduction target, and provide implementation strategies to ensure smooth follow through.

Reducing greenhouse gas emissions in county government is only the beginning. It is the County's goal that we can build a broad-based coalition of stakeholders to undertake emissions reduction campaigns in other sectors: commercial, residential, educational, and local government. Tompkins County is leading the way.

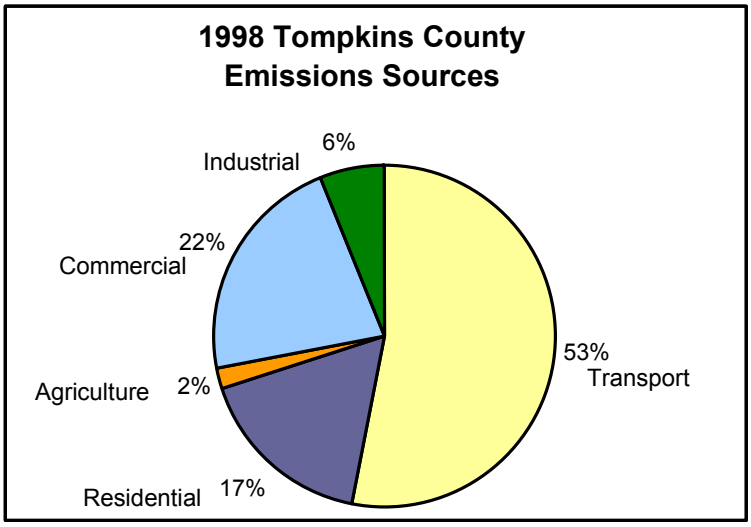
CCP communities like Tompkins County collectively contribute about 18% of greenhouse gas emissions released from the United States. Together, CCP communities can pave the way to transforming our nation from being the world leader in consumption to the world leader in conservation. The County is committed to taking action against the ever-growing environmental catastrophe of global warming.

Tompkins County Greenhouse Gas Emissions Analysis

During the summer of 2001 an inventory was taken of greenhouse gas emissions from both the Tompkins County community, and emissions as a result of county government operations. The base year of the inventory was 1998. All output from the inventory was presented in units of equivalent carbon dioxide (eCO_2). eCO_2 is a common unit that allows emissions of greenhouse gases such as nitrous oxide to be added together and allows each greenhouse gas to be weighted according to its relative contribution to global climate change. The local action plan will use these same equivalent units.

Community Inventory Results

In 1998, the Tompkins County community produced a total of 1,223,432 tons eCO_2. The inventory shows that emissions from transportation (more specifically, the combustion of gasoline and diesel) produced the majority of community emissions at 53%. Commercial energy use (from electricity, natural gas, heating oil, and propane) is the second biggest source of emissions, comprising 22% of community emissions.

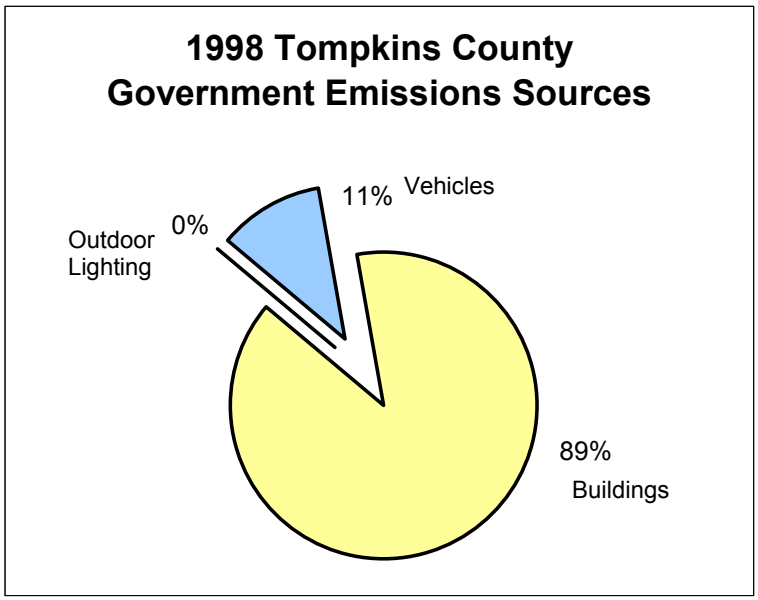


Of the 106,555 tons of solid waste generated in Tompkins County in 1998, 42%, or 45,007 tons, was recovered and recycled. The remaining 58%, or 61,548 tons, was brought to a landfill with high amounts of methane recovery.

In 2020, community emissions are forecasted to rise to 1,264,120 tons eCO_2, an increase of 3.3% from 1998. This projected increase comes exclusively from a 7.7% increase in emissions in the transportation sector as a result of automobile use.

Government Operations Inventory Results

Municipal activities play an important role in the public sector's contribution to global climate change. The County ultimately has greater control over its own emission-producing actions, such as building heating and cooling, in contrast to those resulting from private activities.



The County spent approximately $1.14 million on electricity, natural gas, gasoline and diesel, all energy sources that emit greenhouse gases during their production prior to consumption.

In 1998, government operations produced a total of 6,849 tons eCO_2. The vast majority of emissions, 89%, or 6,113 tons eCO_2, came from building energy use, which powers things such as electronics, lighting, heating, and air conditioning systems. The County buildings that produced the most emissions include the Airport Terminal, Human Services Building, Biggs A, and the three buildings that comprise the Courthouse Complex. The Ithaca Tompkins Regional Airport had the highest energy use, both in net consumption and in consumption on a per square foot basis. Electrical consumption at the airport was responsible for 12.3% of emissions by county government.

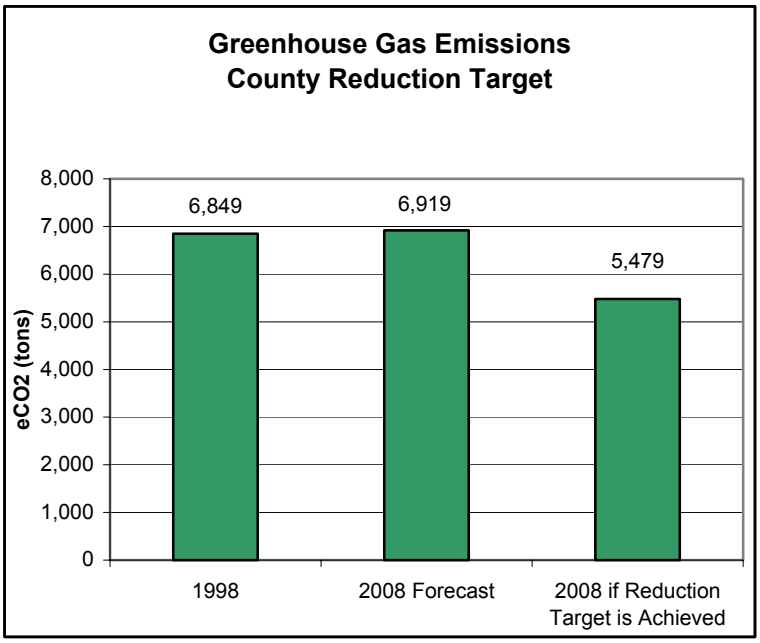
The County vehicle fleet, through the combustion of gasoline and diesel fuels, accounts for another 11% of the total emissions from government operations, or 752 tons eCO_2. It is worth noting that departments that hold older vehicles in their fleet generally spend more on gasoline and maintenance costs per vehicle than departments with newer vehicles. Consequently, departments with older vehicles may be contributing disproportionately high greenhouse gas emissions even though these departments generally hold fewer vehicles.

Outdoor lighting, which consists primarily of lighting systems outside the Tompkins Regional Airport and the County Courthouse, produced 8 tons eCO_2 in 1998 and accounted for only 0.1% of government emissions. As a result, county government incentives to reduce emissions will focus primarily on buildings and vehicles, since outdoor lighting is not considered to be a major factor in greenhouse gas production by the County.

If county government procedures and practices continue as they are, emissions are expected to increase 1.9% by the year 2020.

Existing, Post-1998 Measures

Achieving the emissions reduction target for county government operations requires that emissions in the year 2008 be reduced to 5,479 tons eCO_2 per year. This is 20% below the 1998 level of 6,849 tons eCO_2. Emissions are projected to increase 1.9% by 2020. Taking into account an estimated 0.95% increase in emissions (65 tons eCO_2) from 1998 to 2008 we have calculated that the County will need to reduce total emissions by 1,435 tons eCO_2 by 2008 to reach the 20% reduction goal that was adopted by the County Legislature.



Preparation of a Local Action Plan has provided an important opportunity to identify actions that have already been implemented by Tompkins County government to save money and increase energy efficiency since the baseline inventory was conducted for 1998. These building efficiency improvements reduce greenhouse gas emissions and improve local air quality. These existing measures also move the County forward to reducing emissions by 1,435 tons eCO_2 by the year 2008.

It is important to recognize that county government has supported energy conservation and waste reduction programs prior to the implementation of the Local Action Plan. It is commendable that County Legislature, department heads, and staff are actively pursing these measures.

Library Solar Panel Installation

One of the most significant and visible actions the County has already taken to reduce energy consumption in county buildings was to install a 146-kilowatt photovoltaic solar panel system in the new County library in 2001. The PowerLight Corporation, the main supplier of the solar panels, monitored the solar panel system's performance for a full year in 2002. The total system availability was 84% as a result of communication loss with the system's monitoring system, which was fixed by year-end.

A total of 126,200 kilowatt hours (kWh) of energy was produced from the solar panels, which contributed on average 15% of the library's total energy use in 2002. The County saved a conservative estimate of $10,000 in energy costs, and eliminated the emission of 65 tons eCO_2.

When the communication problems are eliminated and the PV system is operating at 100% availability in contrast to the 84% availability, these figures are expected to increase. It is difficult to determine actual cost savings as a result of the demand model used by the electricity supplier to determine electricity costs. The demand rate is based on peak daily usage over the billing period. By reducing this peak demand, the library solar panels help to defray electricity demand charges throughout the year.

The solar panel installation also provides educational benefits. The PowerLight Corporation installed and maintains an educational kiosk in the library that posts real time performance data. Students and others are successfully included in monitoring and attending solar workshops at the library. The library solar panels have also been featured in many news articles both in local papers and national magazines.

Building Energy Audits

The Tompkins County emissions inventory outlined that 89% of the County's total emissions were attributable to its buildings. In 1998 the County utilized 500,000 square feet of space and spent $1,000,000 annually in energy costs. Managing building energy use better could significantly reduce costs. The County approached the New York State Energy Research and Development Authority (NYSERDA) for assistance. NYSERDA is a public benefit corporation that was created by the New York State legislature in 1975 to help communities implement more efficient, low-cost energy saving measures. NYSERDA's Flexible Technical (Flex Tech) Services program contracts with local technical firms to conduct energy audits that identify opportunities to use energy more efficiently in existing buildings. Strategic improvements can decrease costs, often pay for themselves, increase safety and comfort, improve indoor air quality, and reduce energy consumption.

In October of 2002 the County entered into a Flex Tech Work Plan to conduct a technical feasibility study for county buildings. The project will perform an energy audit of county buildings and recommend the most efficient measures to conserve energy. NYSERDA's Flex Tech Program pays for 50% of the technical study cost up front and offers further financial rebates if some recommended improvements are implemented.

The primary focus of the Phase I building audit is to identify "no-cost" and "low-cost" measures that could be implemented by county staff to achieve energy savings in the short term. Measures could include: high efficiency lighting, delamping in large workspaces that are over lit, timer controls and occupancy sensors, air sealing (walls and ceilings), pipe and duct insulation, and energy management systems. The final report, due in May 2003, will list all of the recommended measures, implementation costs, energy quantity savings, and other potential benefits. Where appropriate, the report will also recommend implementation strategies.

The County has budgeted $50,000 to undertake the initial, Phase I energy efficiency measures in 2003. The County estimates that by adopting the low-cost measures recommended by the Flex Tech study in the short term, building energy usage can be cut by 10%, resulting in a reduction of 602 tons eCO_2.

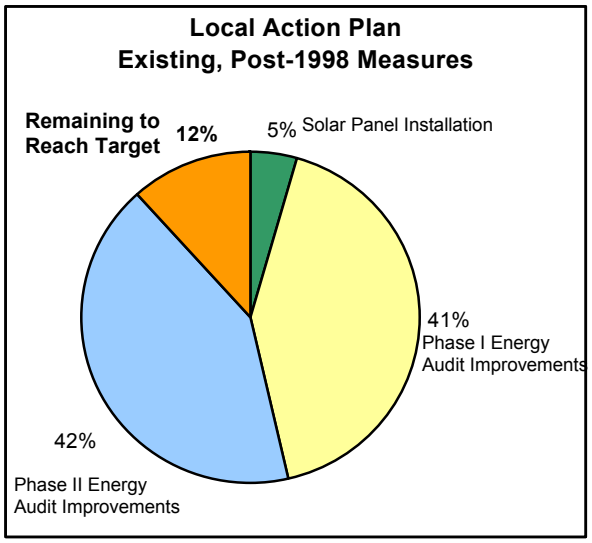
In addition to recommending low- and no-cost energy reduction measures in county buildings, another goal of the Flex Tech study will be to prioritize buildings for further in-depth energy assessments (Phase II), including heating/ventilation equipment, motors, and controls. It is estimated that the County can reduce building energy usage by another 10% if these further in-depth energy assessments are undertaken, resulting in an additional reduction of 602 tons eCO_2.

Existing, Post-1998 Building Efficiency Improvements

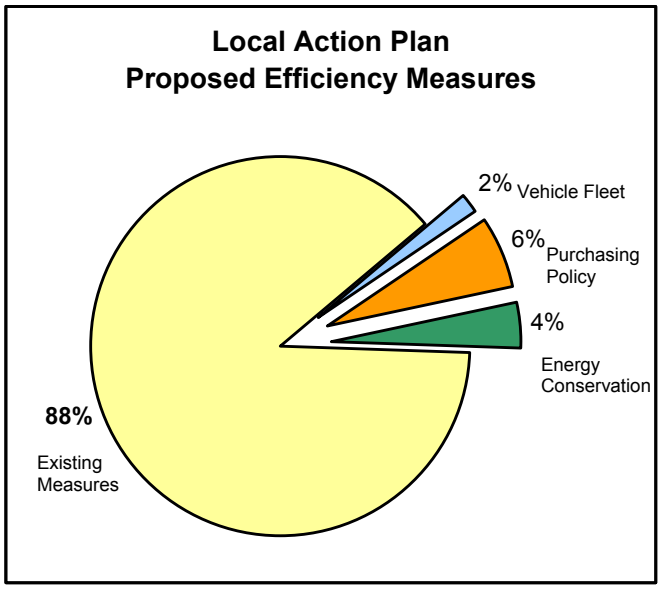
The existing, post-1998 measures that the County has already initiated to reduce greenhouse gas emissions could reduce emissions by 1,269 tons eCO_2. These measures, if fully implemented, will meet 88% of the County's emission reduction goal.

LOCAL ACTION PLAN EMISSIONS REDUCTION

Plan Component	Annual Emissions Reduction eCO_2 (tons)
Existing, Post-1998 Measures	
Building Efficiency Improvements	
Solar Panel Installation (2001)	65
Phase I Energy Audit Improvements	602
Phase II Energy Audit Improvements	602
Total Existing, Post-1998 Measures	**1,269**



Proposed Measures



When the existing, post-1998 measures are fully implemented, the County will still need to reduce emissions by another 166 tons eCO_2 to meet the 20% reduction goal of 1,435 tons eCO_2 by the 2008 target date. After completing efforts to identify and quantify the greenhouse gas reduction benefit of existing measures, a list of potential new actions to reduce greenhouse gases have been identified. The Local Action Plan has identified three overall operations efficiency improvements that can be undertaken to further reduce county government emissions and reach or exceed the 20% goal. The new measures that are recommended in this section would result in an estimated reduction of at least 166 tons eCO_2, or 12% of the total emission reduction goal. These measures include vehicle fleet efficiency improvements, formalizing a county government purchasing policy, and encouraging general energy conservation measures.

County Vehicle Fleet

In 1998 the County owned 122 vehicles and spent $41,000 in fuel costs. Gasoline and diesel use from county vehicles produced 752 tons eCO_2, which represented 11% of the County's total emissions. Generally, the departments that spent the most on vehicle maintenance had the oldest vehicles in the fleet, and those vehicles emitted the highest levels of emissions per mile. This suggests a need to replace older vehicles with newer, more fuel-efficient models. Such an action may require an initial outlay of capital, but the savings would accrue from lower maintenance and fuel costs in the long run. In addition, there may be other measures that could be implemented to achieve cost and energy savings.

The Local Action Plan proposes to establish a "Green Fleet" policy to address the overall management, operation and procurement of fleet vehicles owned and operated by Tompkins County. The policy will improve energy efficiency, reduce emissions, and increase the capacity of the fleet to save the County money.

The City and County of Denver Colorado enacted one of the first Green Fleet executive orders on Earth Day 1993. Originally, the program set targets of 1% and 1.5% annual average reductions in fuel expenditures and CO_2 emissions, respectively. After achieving substantial reductions over seven years the order was revised in 2000, and new goals were targeted to provide more flexibility. If Tompkins County government were to reduce

vehicle emissions by a modest 3% over the next four years, or approximately three-quarters of a percent per year, it could prevent the emission of 23 tons eCO_2. The County will provide public leadership, save money, benefit from an environmental perspective, and provide an example to private companies.

The County should adopt a resolution to establish a Green Fleet policy, thereby formalizing the process. A committee can be charged with working out the details at the departmental level with program performance monitored by a review committee. The policy should set realistic goals for reducing energy use, air pollutants, and carbon dioxide emissions for the overall fleet. There are many cost-effective and practical measures that can be implemented which include:

- Right-size vehicle fleets by downsizing and eliminating vehicles.
- Incorporate mileage efficiency into bid specifications.
- Require regular maintenance and upkeep.
- Require phase out of older vehicles and replace them with newer, more fuel efficient models.
- Optimize vehicle travel, operation, and maintenance.
- Substitute other travel modes, or reduce the need to travel.
- Purchase fuel efficient, alternatively fueled, and electric vehicles.
- Approach local car dealerships to negotiate bulk purchasing prices for alternative fuel vehicles.

Purchasing

As a general rule, Tompkins County purchases vehicles and office equipment through the New York State Office of General Services (OGS). At the present time however, the County does not have a formal purchasing policy in place regarding the energy efficiency of office appliances such as computers, fax machines, and printers although they are available through the OGS. The Local Action Plan recommends that the County adopt an energy efficiency purchasing policy that requires all new office equipment to meet or exceed ENERGY STAR® standards. This type of policy could reasonably cut emissions by at least 87 tons eCO_2 by 2008. In addition to office equipment, other types of purchasing should be addressed in the countywide policy. For example, building renovation and new construction projects should include energy efficiency measures in the project specifications.

ENERGY STAR® is one of the Environmental Protection Agency's voluntary climate change partnership programs helping businesses and individuals protect the environment through superior energy efficiency. The program provides easy-to-recognize ENERGY STAR® labels for more than 35 product categories that enable businesses, organizations, and consumers to realize the cost savings and environmental benefits of energy efficiency investments through a straightforward market-based approach.

The 2001 Annual Report issued by the EPA details the success of the ENERGY STAR® program, and shows that partnerships continue to benefit the environment and consumers. The report estimates that through voluntary efforts such as ENERGY STAR®, Americans have reduced

greenhouse gas emissions by 38 million metric tons of carbon equivalent - the same as taking more than 25 million cars off the nation's roads.

Office equipment with ENERGY STAR® ratings can increase energy savings by powering down and entering sleep mode when not in use for prolonged periods of time. A conventional desktop computer and monitor use an average of 506 kWh per year. An ENERGY STAR® labeled computer, in sleep mode, uses 70% less electricity than computers without power management features. Monitors can use as much as 90% less electricity. Combined, an ENERGY STAR® labeled computer and monitor would use an estimated 225 kWh per year, a reduction of 281 kWh per year. If the County phased out an estimated 600 old computers and replaced them with ENERGY STAR® rated models a savings of 168,600 kWh per year, or 87 tons eCO_2, could be realized. Other office equipment could further reduce electricity consumption and reduce greenhouse gas emissions. ENERGY STAR® labeled copy machines and fax machines use up to 40% less electricity while printers use up to 60% less. Spending a large portion of time in low-power mode not only saves energy but helps equipment run cooler and last longer. Additional savings on air conditioning and maintenance may also be realized as a result of less heat from lower powered office equipment.

Energy Conservation

Maximizing the efficiency of existing energy-using products in the workplace can also achieve significant emissions reductions in addition to purchasing policies for newer, more energy efficient equipment. The most effective way to maximize energy efficiency is to use less energy. Energy conservation measures are generally small behavioral changes that, cumulatively, can make a big difference. The Local Action Plan recommends encouraging less consumption to reduce 56 tons eCO_2 by 2008. This represents less than one percent of current county government emissions.

The key to a successful conservation program is to encourage departmental participation and specifically recognize departmentwide and individual actions. Conservation does not mean deprivation. Everyone needs adequate lighting, heating, and cooling in the workplace. However, there are a number of conservation measures that can be effectively instituted. Some of these include:

- Promote energy education, training workshops, and participation incentives.
- Use natural light whenever possible.
- Turn off unnecessary lights.
- Enable power management features in computers and other office equipment to maximize savings. (Screen savers do not save energy; complex screen savers actually increase energy use)
- Shut down computers at night.
- In the winter, close window coverings at the end of the day to cut down on heat loss. In the summer, close window coverings during the day to avoid the heat gain of direct sunlight.
- Turn off all lights at night, including task and office lights.
- Turn down heaters when closing for the night.
- Reuse and recycle paper products.

Proposed Operations Efficiency Improvements

The operations efficiency improvements proposed in this Local Action Plan will account for 12% of the total goal to reduce county government emissions by 1,435 tons eCO_2. Working together, the County can implement the proposed measures to reduce emissions by at least 166 tons eCO_2 and reach the overall target by 2008.

LOCAL ACTION PLAN EMISSIONS REDUCTION

Plan Component	**Annual Emissions Reduction eCO_2 (tons)**
Proposed Measures	
Operations Efficiency Improvements	
Vehicle Fleet	23
Purchasing Policy	87
Energy Conservation	56
Total Proposed Measures	**166**

Implementation

The Local Action Plan is intended as a guide to help the County pursue measures that will reduce greenhouse gas emissions. Some of the measures in the Plan are already being implemented. In some cases, implementation will require cooperation from departments and other agencies. Proposed measures may require other resources. Budget recommendations will have to balance available resources, competing programs, and priority goals. The Local Action Plan supports three primary strategies to help the County attain its climate protection goals.

Strategy 1 – Support full implementation of the *Local Action Plan to Reduce Greenhouse Gas Emissions* at the county government level.

By adopting, fully implementing and monitoring the Local Action Plan for county buildings and operations, Tompkins County is helping to demonstrate and lead the community's climate protection activities. The following table summarizes the actions the County has already taken, and those it can take, to reach its goal of reducing emissions to 20% below 1998 levels by the year 2008.

LOCAL ACTION PLAN EMISSIONS REDUCTION

Plan Component	**Annual Emissions Reduction eCO_2 (tons)**
Existing, Post 1998 Measures	
Building Efficiency Improvements	
Solar Panel Installation (2001)	65
Phase I Energy Audit Improvements	602
Phase II Energy Audit Improvements	602
Sub-Total, Existing Measures	**1,269**
Additional Proposed Measures	
Operations Efficiency Improvements	
Vehicle Fleet	23
Purchasing Policy	87
Energy Conservation	56
Sub-Total, Proposed Measures	**166**
Total Local Action Plan Savings	**1,435**

The following actions should be taken to create immediate and long-term impacts from Strategy 1:

- Adopt the Local Action Plan by the Tompkins County Legislature.
- Appoint an oversight committee to direct full implementation of existing and proposed measures.
- The oversight committee should work with department heads and other stakeholders to:
  - Provide leadership and follow through for building audit recommendations.
  - Develop a Green Fleets policy.
  - Establish a county government purchasing policy.
  - Support energy conservation and education.
  - Document cost savings and energy savings to encourage further actions.
  - Guide requests for fiscal and budgetary considerations relevant to implementation.

Strategy 2 – Monitor and report emissions reductions.

The emissions reduction measures are intended to be implemented over a period of several years. During that time, it is likely some measures will change as circumstances change and new opportunities present themselves. Therefore, monitoring of progress and periodic evaluation of measures will be a critical part of meeting any goal for greenhouse gas reduction.

To ensure that the Local Action Plan is being effectively and efficiently implemented, a review and update should be undertaken. Tompkins County's commitment to reduce greenhouse gases will involve an emissions inventory update and evaluation of actions at the midway point in 2005. The oversight committee will monitor programs and make recommendations to modify the plan if necessary.

Strategy 3 – Build a coalition of stakeholders that can spearhead emissions reduction measures in the municipal, business and residential sectors of Tompkins County.

The Local Action Plan addresses only county government operations, which make up a small portion of community wide emissions. Through outreach and advocacy, a broad range of municipal, individual, household, and business investments and actions will produce measurable emissions reductions. The County will actively encourage other communities to undertake similar plans in recognizing that global warming is a worldwide problem that can only be solved by the cumulative effect of local actions. To implement this strategy the County should:

- Establish a countywide task force representative of other municipal, commercial and residential interests to work on specific projects.
- Provide outreach and support to the regional task force to encourage the development of a Local Action Plan for community wide greenhouse gas emissions.
- Use the County's emission reduction results as a success story to encourage further actions.
- Foster public awareness of global warming issues to encourage individual choices supportive of reducing individual greenhouse gas emissions.

Conclusion

A major purpose of the Local Action Plan is to focus continuing attention on the potential global impacts of local action. The decisions of local governments can and do result in global impacts. Tompkins County is helping to demonstrate and lead the community's climate protection activities by adopting, implementing, and monitoring the Local Action Plan for county operations. Compared to the potential of reductions from other sectors, the estimated savings in greenhouse gas emissions from the County action plan are relatively small – but these actions set an important example within the community. Improving, and communicating about, the efficiency of county-owned buildings and vehicle fleets are strategies that are just the beginning.

Energy use from county government operations is responsible for roughly 0.5 percent of the total greenhouse gas emissions in Tompkins County. The actions outlined in the Local Action Plan are expected to reduce greenhouse gas emissions by 1,435 tons eCO_2 by 2008. Perhaps as important as the specific emissions reduction, the County's ongoing promotion of sustainability will encourage Tompkins County residents, businesses, institutions of higher learning, and municipalities to continue with their own efforts to reduce emissions. Energy efficiency measures reduce energy costs, enhance environmental quality, improve security and sustainability, and enhance economic vitality.